REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 1-13, 15, 26-39, and 41-46 have been cancelled, claims 40 and 47-51 have been amended, and claims 52-59 have been newly added. Support for the amendments is provided by the original claims and the specification on page 8, line 5, through page 9, line 1.

Claims 14 and 16-25 are withdrawn from consideration as directed to non-elected subject matter.

Claims 1, 2, 4, 15, 26, 38, and 43 were rejected, under 35 USC §102(b), as being anticipated by Harbrecht (US 3,417,660). Claim 3 was rejected, under 35 USC §103(a), as being unpatentable over Harbrecht in view of Fukahori et al. (US 4,899,323). Claims 5-7 were rejected, under 35 USC §103(a), as being unpatentable over Harbrecht in view of Shtarkman (US 4,504,044). Claim 12 was rejected, under 35 USC §103(a), as being unpatentable over Harbrecht in view of Monroe (US 1,995,620). Claims 40-42, 44, 45, and 47 were rejected, under 35 USC §103(a), as being unpatentable over Mouille et al. (US 4,458,862) in view of WO 85/05425 and further in view of Harbrecht. Claim 46 was rejected, under 35 USC §103(a), as being unpatentable over Mouille in view of WO 85/05425 and further in view of Fukahori.

Claims 48-50 were rejected, under 35 USC §103(a), as being unpatentable over Mouille in view of WO 85/05425, Harbrecht, and Shtarkman. Claim 51 was rejected, under 35 USC §103(a), as being unpatentable over Mouille in view of WO 85/05425, Harbrecht, and Monroe. To the extent these rejections may be deemed applicable to amended claims 40 and 47-51 and new claims 52-59, Applicants respectfully traverse.

Claim 40 now recites:

> *A suspension system for a rotary wing aircraft gearbox, said suspension system comprising a number of suspension bars, wherein at least one of said suspension bars comprises a damping structure comprising:*
>
> *a member which is rigid and which defines an internal cavity;*
>
> *an aggregate which comprises at least solid bodies in contact and which fills said internal cavity; and*
>
> *a closing device for closing off said internal cavity,*
>
> *wherein vibrations of the suspension bars are transmitted to the solid bodies of the aggregate and vibrational energy is dissipated through friction, so that the vibrations are damped quickly and effectively.*

The Office Action proposes that it would have been obvious to use the aggregate damper disclosed by Harbrecht, in view of the teachings of WO 85/05425, as an alternative design in the suspension system disclosed by Mouille to damp the vibrations of a gearbox (Office Action page 4, last four lines). The Office Action further proposes that Harbrecht's aggregate damper performs the same function and solves the same problem as

Mouille's mass damper, in that they both reduce vibrations (page 5, lines 1-2).

However, it is well-settled law that, if a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious (MPEP §2143.01, first sentence following last bolded heading; *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). Here, the reference teachings are inadequate because modifying Mouille's inertial antiresonant suspension structure to incorporate Harbrecht's aggregate damper would change the principle of operation for Mouille's structure for the following reasons.

Harbrecht's aggregate damper dampens vibrations, to which it is subjected, by dissipating the applied vibrational energy as heat energy, which is generated by the frictional forces acting on the aggregate within the shock absorber. On the other hand, Mouille's inertial antiresonant system counters elastic reactions of deformation through inertial counterforces (Mouille abstract).

In the *In re Ratti* case mentioned above, the CCPA reversed a rejection, reasoning that the suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the primary reference as well as a change in

the basic principle under which the primary reference construction was designed to operate (70 F.2d at 813, 123 USPQ at 352). In the present case, modifying Mouille's system of oblique bars 25, mounting plate 19, arms 19b, ball joints 27, joints 22 and 27, pivot pins 23, outer arm extensions 19c, and flapping weights 24 to accommodate Harbrecht's aggregate damper would not only require a substantial reconstruction and redesign of Mouille's structure but would also substantially change the basic principle under which Mouille's inertial antiresonant system was designed to operate. So modified, Mouille's system would no longer counter elastic reactions of deformation through inertial counterforces, but, instead, would operate to dissipate the vibrational forces operating on the suspension bars by converting the mechanical energy into heat energy.

Just as in *In re Ratti*, the teachings of the present references are not sufficient to render the instant claims *prima facie* obvious because the proposed modification of Mouille's structure would change its principle of operation.

Additionally, Applicants note that Harbrecht's automatic firearm device is not analogous art to the claimed invention and one of ordinary skill in Applicants' field of endeavor would not look to the field of automatic firearms for solutions to problems experienced in Applicants' field. More specifically, Harbrecht's

automatic firearm is not analogous art because it is: (1) not in the same field of endeavor as Applicants' rotary wing gearbox damping structure and (2) not reasonably pertinent to damping the vibrations of a rotary wing aircraft and reducing the noise generated by these vibrations inside the passenger cabin of the aircraft (see MPEP §2145(IX)).

Accordingly, because the proposed modification of Mouille's structure would change its principle of operation and because Harbrecht's automatic firearm device is not analogous art to Applicants' invention, the combined teachings of the applied references do not render obvious the subject matter defined by claim 40. Therefore, allowance of claim 40 and all claims dependent therefrom is warranted.

Moreover, with regard to claim 40, the Office Action proposes that Mouille discloses dampers 24 on a rotary wing aircraft gearbox 15 (Office Action page 4, third paragraph). However, the Applicants respectfully submit that Mouille's device is not a damper. Instead, Mouille's device is an inertial antiresonant system (Mouille col. 4, lines 21-24), as described above, which acts as a mass and spring system. A mass and spring system is known to form a narrow bandwidth vibration filter. By contrast to Mouille's inertial antiresonant system, the aggregate damper recited in Applicants' claim 40 reduces vibrations over a

very wide bandwidth, as described on page 5, lines 33-36, of Applicants' specification. In brief, Mouille's inertial antiresonant system does not perform the same function as an aggregate damper, in that it does not frictionally damp vibrations or form a wide bandwidth filter of these vibrations.

Furthermore, one of ordinary skill in the art would not have found a suggestion in the combined teachings of the applied references to place solid bodies (i.e., aggregate) inside a suspension bar of a rotary aircraft, for the following reasons. Firstly, a suspension bar is known to be a compact element having no cavity. Secondly, the aggregate material disclosed by Harbrecht is steel pellets and that disclosed by WO 85/05425 is metal chips or balls. Because metal is generally heavy, one of ordinary skill in the art would be dissuaded from adding such metal aggregate to a gearbox suspension system, due to the detrimental increase in aircraft mass that would result.

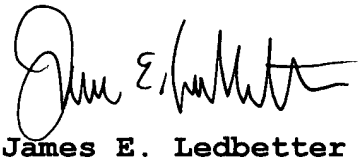
Accordingly, Applicants submit that one of ordinary skill in the art, at the time the present invention was made, would not have found motivation or a suggestion, within the prior art, to modify Mouille's structure to incorporate Harbrecht's aggregate damper. The other applied references add nothing to cure the deficiencies of Mouille and Harbrecht. Therefore, allowance of

claim 40 and all claims dependent therefrom is warranted for this independent reason.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



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